

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A circuit array for controlling operation of two loads that operate with a rectified AC voltage, the circuit array comprising:

a first current path that includes a first load of the two loads;

a second current path that includes a second load of the two loads;

a semiconductor switch on a circuit path that includes the two loads, the semiconductor switch being electrically connected to a common node of the first current path and the second current path; and

a control unit to generate a switch control signal that controls the semiconductor switch; wherein the control unit comprises:

a phase detection device to detect whether a phase of the AC voltage is positive or negative, and to output a logical detection signal that is based on whether the phase is positive or negative; and

a logic unit to generate the switch control signal based on one or more logical load control signals and the logical detection signal, wherein the control unit is configured to supply the first current path with a first half wave of the rectified AC

voltage and to supply the second current path with a second half wave of the rectified AC voltage.

2. (Previously Presented) The circuit array of claim 1, wherein the control unit further comprises a time control circuit for generating one of the load control signals, the time control circuit generating the one of the load control signals at a predetermined time.

3. (Previously Presented) The circuit array of claim 1, wherein the control unit further comprises a sensor circuit for generating one of the load control signals, the sensor circuit generating the one of the load control signals in response to a sensed condition.

4. (Previously Presented) The circuit array of claim 1, wherein the logic unit is comprises a multiplexer that receives the load control signals and that outputs the switch control signal in response to the detection signal.

5. (Previously Presented) The circuit array of claim 1, wherein the circuit array is part of an integrated circuit.

6. (Currently Amended) An electronic device, comprising:  
an input having leads to receive AC voltage;

a circuit array for controlling a switch to apply voltage to first and second loads based on whether a phase of the AC voltage is positive or negative and logical load control signals generated separately for the first and second loads; and

a rectifier that is connected to the input and that provides the voltage to the first and second loads, the voltage being generated from the AC voltage, wherein the rectifier comprises an open bridge circuit, and wherein the voltage comprises different half waves of the AC voltage wherein a first half wave of the rectified AC voltage is applied to the first load and a second half wave of the rectified AC voltage is applied to the second load.

7. (Currently Amended) The electronic device of claim 6, wherein the circuit array comprises:

a phase detection device to detect whether a phase of the AC voltage is positive or negative and to output a logical detection signal that corresponds to the phase; and

a logic unit to generate, based on the logical load control signals and the logical detection signal, a switch control signal to control the switch.

8. (Previously Presented) The electronic device of claim 6, wherein the control unit comprises a time control circuit for generating one of the load control signals, the time control circuit generating the one of the load control signals at a predetermined time.

9. (Previously Presented) The electronic device of claim 6, wherein the control unit comprises a sensor circuit for generating one of the load control signals, the sensor circuit generating the one of the load control signals in response to a sensed condition.

10. (Previously Presented) The electronic device of claim 7, wherein the logic unit comprises a multiplexer that receives the load control signals and that outputs the switch control signal in response to the detection signal.

11. (Previously Presented) The electronic device of claim 6, wherein the circuit array is part of an integrated circuit.

12. (Withdrawn) Circuitry for controlling application of voltage to first and second loads, the circuitry comprising:

- a switch between ground and the first and second loads;
- a first circuit to output a first signal indicating to power the first load;
- a second circuit to output a second signal indicating to power the second load;
- a phase detector to output a third signal indicative of a phase of an AC voltage;
- logic that operates in response to the first signal, the second signal, and the third signal to open or close the switch; and
- a rectifier to provide one half wave of the AC voltage to the first load and a different half wave of the AC voltage to the second load.

13. (Withdrawn) The electronic device of claim 12, wherein the first circuit comprises a time control circuit, the time control circuit generating the first signal at a predetermined time.

14. (Withdrawn) The electronic device of claim 12, wherein the second circuit comprises a sensor circuit, the sensor circuit generating the second signal in response to a sensed condition.

15. (Withdrawn) The electronic device of claim 12, wherein the logic outputs a control signal, and the switch comprises a transistor having a gate that receives the control signal.

16. (Withdrawn) The electronic device of claim 12, wherein the rectifier comprises a resistive-capacitive circuit that includes diodes.

17. (Withdrawn) The electronic device of claim 12, wherein the logic comprises:  
a first AND gate that receives the first signal and an inverted version of the third signal, and that outputs a first intermediary signal;  
a second AND gate that receives the second signal and the inverted version of the third signal, and that outputs a second intermediary signal; and  
an OR gate that receives the first intermediary signal and the second intermediary signal, and that outputs a control signal that is applied to the switch to open or to close the switch.

18. (Withdrawn) The electronic device of claim 12, wherein the logic comprises a multiplexer that receives the first and second signals and that outputs a signal to control the switch in response to the third signal.

19. (Previously Presented) The circuit array of claim 1, wherein the semiconductor switch on the circuit path that includes the two loads comprises a single MOSFET device.

20. (Previously Presented) The circuit array of claim 1, wherein the circuit array for controlling a switch to apply voltage to the two loads is configured to:

apply a voltage to the first load of the two loads when a phase of the AC voltage is positive and

apply a voltage to the second load of the two loads when a phase of the AC voltage is negative.

21. (Previously Presented) The circuit array of claim 1, wherein the semiconductor switch is connected between ground and the two loads.

22. (New) The circuit array of claim 1 wherein the logical load control signal comprises a signal selected from a group consisting of a logical 0 and a logical 1.